ACC.15
TCT@ACC-i2 | innovation in intervention

A1333
JACC March 17, 2015
Volume 65, Issue 10S

Non Invasive Imaging (Echocardiography, Nuclear, PET, MR and CT)

IMPORTANCE OF STRESS PERFUSION AND DIASTOLIC FUNCTION IN PREDICTING OUTCOME OF CONTEMPORARY END STAGE LIVER DISEASE PATIENTS UNDERGOING TRANSPLANTATION

Poster Contributions
Poster Hall B1
Monday, March 16, 2015, 9:45 a.m.-10:30 a.m.

Session Title: Non Invasive Imaging: Advances in Clinical Non-Invasive Imaging
Abstract Category: 17. Non Invasive Imaging: Echo
Presentation Number: 1243-045

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Background: Structural and electrical cardiac abnormalities are being recognized with increasing frequency in end stage liver disease (ESLD) patients, including both occult coronary artery disease (CAD) and diastolic function abnormalities that may complicate liver transplantation recovery. A dobutamine stress perfusion echocardiogram (DSPE) with intravenous ultrasound contrast, combined with a baseline diastolic function assessment (DFA), may be the most comprehensive method of assessing the risk for these complications. We sought to evaluate the prognostic value of a DFA and DSPE in predicting risk for arrhythmias and CAD events in ESLD patients.

Methods: This retrospective cohort study included 232 adults who had both a DFA and DSPE during a continuous infusion of microbubbles (Definity; Lantheus, Inc) prior to liver transplantation over a five year period (2008-2013). Associations between inducible perfusion defects (PD), wall motion abnormalities (WMA), and baseline DFA (Grade I-III) were correlated with cardiovascular death, atrial fibrillation, ventricular arrhythmias, and myocardial infarction (MI) using a Kaplan-Meier estimator and Cox proportional hazards model.

Results: Among 232 patients, 17 (7.3%) had perfusion defects, and 13 (5.6%) had inducible WMA. DFA was abnormal in 92 patients (40 %). Median follow up was 3.5 years. Cardiovascular death or non-fatal myocardial infarction occurred in 11% in patients with perfusion defects, versus 1 % in those with normal perfusion during DSPE (p= 0.004). The presence of inducible WMA was not a significant predictor of events. Atrial fibrillation and ventricular arrhythmias were seen in 6 patients (6%) with abnormal DFA compared to 3 patients (2%) with normal DFA (not significant). Overall event rates (cardiovascular death, non-fatal MI, and arrhythmias) were highest in patients with abnormal DFA and perfusion (50 %) while those with normal DFA and perfusion had the lowest event rate (5%; p=0.006).

Conclusion: A comprehensive evaluation of both diastolic function and inducible perfusion defects is important to risk stratify current patient populations with ESLD undergoing transplant evaluation.